

Innovative Solid State Lighting Replacements for Industrial and Test Facility Locations, Phase II

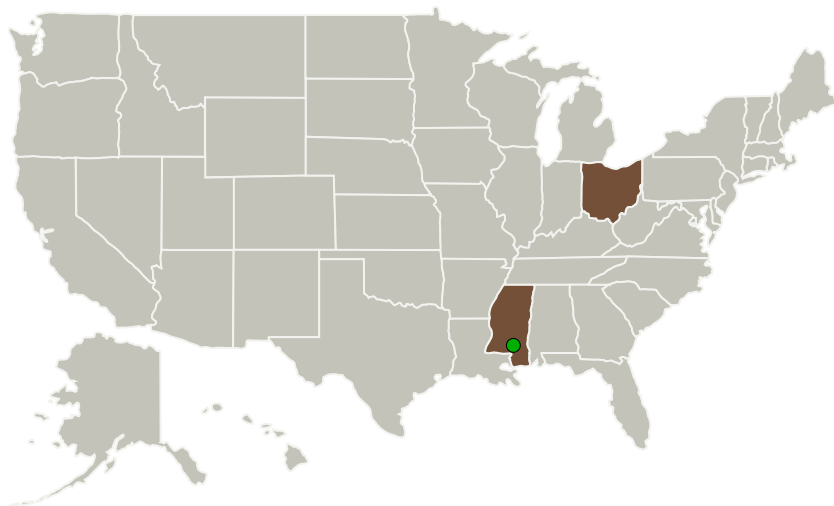
Completed Technology Project (2011 - 2015)



Project Introduction

The proposed effort will develop a solid-state LED replacement lamp for rocket engine test stand lighting and more general hazardous-location lighting. The LED lighting will produce a smoother lighting spectrum compared to the existing arc lamp sources which will improve the visual accuracy and quality of high-speed engine photography. The LED lighting will also last significantly longer than arc lamps which require frequent replacement in hazardous-gas environment. A specialized array of optical collectors will redirect the light more effectively to the needed test areas using principles on non-imaging optics. The result will be improved lighting for engine diagnostics, lower operating costs for the test stand, much longer lamp life and a safer environment by reducing or eliminating lighting maintenance operations in an explosive environment. The housing will also be shock, vibration and heat resistant to be able to withstand the proximate effects of live-fire rocket engine testing. The electronic controls for the lighting will be sited remotely from the lamp head to be consistent with the existing facility and for thermal and reliability considerations. Additionally, a hazardous-location LED lighting device for general illumination which is not for high-speed engine diagnostics will also be developed and tested.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Energy Focus, Inc.	Lead Organization	Industry	Solon, Ohio
John Carroll University	Supporting Organization	Academia	University Heights, Ohio
● Stennis Space Center(SSC)	Supporting Organization	NASA Center	Stennis Space Center, Mississippi

Primary U.S. Work Locations

Mississippi	Ohio
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Project Transitions

**July 2011:** Project Start**April 2015:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137407>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Energy Focus, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Roger Buelow

Co-Investigator:

Roger Buelow

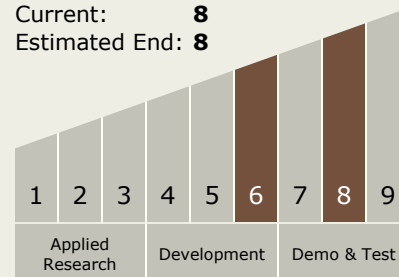
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Technology Maturity (TRL)

Start: 6
Current: 8
Estimated End: 8



Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
 - └ TX06.1 Environmental Control & Life Support Systems (ECLSS) and Habitation Systems
 - └ TX06.1.4 Habitation Systems

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System